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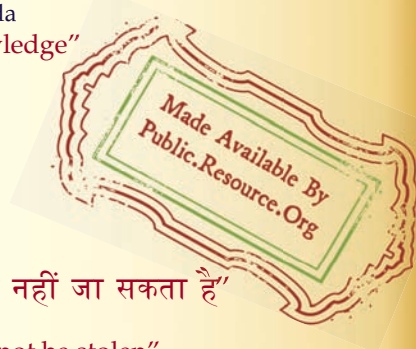
IS 10405 (1982): Black centered board [CHD 15: Paper and its products]



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“Knowledge is such a treasure which cannot be stolen”

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IS : 10405 - 1982
(Reaffirmed 1992)

Indian Standard

**SPECIFICATION FOR
BLACK CENTRED BOARD**

(First Reprint JANUARY 1999)

UDC 676.2.064.2

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

**AMENDMENT NO. 3 SEPTEMBER 2008
TO
IS 10405 : 1982 SPECIFICATION FOR BLACK
CENTRED BOARD**




*(Page 4, clause 3.6, read with Amendment No. 1) — Substitute
'Additional Requirements for ECO Mark' for 'Optional Requirements for
ECO Mark'.*

(CHD 15)

Reprography Unit, BIS, New Delhi, India

**AMENDMENT NO. 1 SEPTEMBER 1993
TO
IS 10405 : 1982 SPECIFICATION FOR BLACK CENTRED
BOARD**

(Page 3, clause 0.4) — Add this new clause after clause 0.3 and renumber the subsequent clause:

'0.4 A scheme for labelling environment friendly products known as ECO Mark has been introduced at the instance of the Ministry of Environment and Forests (MEF), Government of India. The ECO Mark would be administered by the Bureau of Indian Standards (BIS) under the BIS Act, 1986 as per the Resolutions No. 71 dated 21 February 1991 and No. 425 dated 28 October 1992 published in the Gazette of the Government of India. For a product to be eligible for marking with ECO logo, it shall also carry the  Mark of BIS besides meeting additional optional environment friendly requirements. For this purpose, the Standard Mark of BIS would be a single mark being a combination of the  Mark and the ECO logo. Requirements to be satisfied for a product to qualify for the BIS Standard Mark for ECO friendliness, will be included in the relevant published Indian Standards through an amendment. These requirements will be optional; manufacturing units will be free to opt for the  Mark alone also.

This amendment is based on the Gazette Notification No. 455 dated 13 November 1992 for paper as environment friendly products published in the Gazette of India. This amendment is, therefore, being issued to this standard to include environment friendly requirements for black centred board.'

(Page 4, clause 3.5) — Add the following new clause after clause 3.5:

'3.6 Optional Requirements for ECO Mark

3.6.1 General Requirements

3.6.1.1 The product shall conform to the requirements for quality and performance prescribed under clauses 3.1 to 3.5.

3.6.1.2 The manufacturer shall produce to BIS, the environmental consent clearance from the concerned State Pollution Control Board as per the provisions of Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 along with the authorisation, if required, under the Environment (Protection) Act, 1986 and the rules made thereunder, while applying for ECO Mark.

3.6.2 Specific Requirements

3.6.2.1 The material shall be of the following two types depending on the raw material used in the manufacture:

a) *Type A* — Manufactured from pulp containing not less than 60 percent by mass of pulp made from materials other than bamboo, hard woods, soft woods and reed.

b) *Type B* — Manufactured from pulp made from 100 percent waste paper.'

(*Page 4, clause 4.1*) — Add the following new clause after 4.1:

'4.1.1 For ECO Mark, the product shall be packed in such packages which shall be recyclable/reusable or biodegradable.'

(*Page 5, clause 4.2.*) — Add the following new clause after 4.2:

'4.2.1 For ECO Mark, following additional information may also be marked on the container/package:

The criteria for which the product has been labelled with ECO Mark.'

i

AMENDMENT NO. 2 MARCH 1999
TO
IS 10405 : 1982 SPECIFICATION FOR BLACK
CENTRED BOARD

[*Page 4, Table 1, Sl No. (i), col 2*] — Substitute 'Opacity' for 'Capacity'.

[*Page 4, Table 1, Sl No. (iii), col 2*] — Substitute 'kPa' for 'kg/cm²'.

[*Page 4, Table 1, Sl No. (iii), col 3*] — Substitute '127' for '1.27'.

(*Page 4, clause 3.3*) — Substitute the following for the existing text:

'3.3 Grammage — Grammage of the black centred board shall be as agreed to between the buyer and the supplier. However, unless otherwise specified, when tested as per 6 of IS 1060 (Part 1) : 1966, no single test result shall vary by more than ± 6 percent from nominal grammage. Further, the mean of 10 test results shall not vary from nominal grammage by more than ± 4 percent.'

(*Page 10, clause A-4.1*) — Substitute the following for the existing:

'A-4.1 Report the average, maximum and minimum results as kilopascals to three significant figures. State also the number of specimens tested.'

(CHD 15)

Indian Standard

SPECIFICATION FOR BLACK CENTRED BOARD

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Indian Standard

SPECIFICATION FOR BLACK CENTRED BOARD

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 31 December 1982, after the draft finalized by the Paper and Its Products (Excluding Packaging Materials) Sectional Committee had been approved by the Chemical Division Council.

0.2 Black centred board is used in the manufacture of (high quality) playing cards and are printed on both sides in multi colours. This standard defines the quality of black centred board with a view to ensuring supply of the material of appropriate quality.

0.3 The requirement for stiffness has not been specified in this standard, which may be included after conducting further study.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and methods of sampling and test for coated and uncoated black centred board.

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in IS : 4661-1968† shall apply.

*Rules for rounding off numerical values (revised).

†Glossary of terms used in paper trade and industry.

3. REQUIREMENTS

3.1 General — The board shall be uniform in thickness, free from holes, hard spots and lumps.

3.2 The board shall also comply with the requirements given in Table 1 when tested in accordance with the methods referred to in col 4 of the table.

TABLE 1 REQUIREMENTS FOR BLACK CENTRED BOARD

SL No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST, REF TO
(1)	(2)	(3)	(4)
i)	Capacity, percent	100	16 of IS : 1060 (Part I)-1966*
ii)	Brightness, <i>Min</i>	70	13 of IS : 1060 (Part II)-1960†
iii)	Ply separation in kg/cm ² , <i>Min</i>	1.27	Appendix A

*Methods of sampling and test for paper and allied products : Part I (*revised*).

†Methods of sampling and test for paper and allied products : Part II.

3.3 Substance and Tolerance on Substance — The substance of black central board shall be as agreed to between the purchaser and the supplier. Unless otherwise specified, a tolerance of ± 5 percent shall be allowed on the nominal substance when tested in accordance with 6 of IS : 1060 (Part I)-1966*.

3.4 Size and Tolerance on Size — The size of the board and the tolerance on size shall be as prescribed in IS : 1064-1980†.

3.5 Black centred board may or may not be coated. If the board is coated, it shall have a minimum coating of 12 g/m² on each coated side, when tested as prescribed in Appendix A of IS : 4658-1968‡.

4. PACKING AND MARKING

4.1 The board shall be securely and suitably packed as agreed to between the purchaser and the supplier.

*Methods of sampling and test for paper and allied products: Part I (*revised*).

†Specification for paper sizes (*second revision*).

‡Specification for coated paper and board (*art and chromo*).

4.2 Each package shall be marked with the following particulars:

- a) Description of the material;
- b) Substance;
- c) Mass of the packet;
- d) Number of sheets,
- e) Lot number and date of manufacture; and
- f) Manufacturer's name or recognized trade-mark.

4.3 The product may also be marked with Standard mark.

4.4 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

5. SAMPLING AND CRITERIA FOR CONFORMITY

5.1 Sampling — Representative samples for tests shall be drawn as prescribed in 3 of IS : 1060 (Part I)-1966*.

5.2 One board shall be chosen randomly from each of the selected units and tested for the requirements given in 3.1. If all of them conform to the requirements, the lot shall be further tested, otherwise rejected. From these boards two boards shall be taken for the requirement 3.2 and one each for the requirements 3.3, 3.4 and 3.5 and tested accordingly.

5.3 Criterion for Conformity

5.3.1 A board not meeting the relevant requirements for any one or more characteristics shall be considered as 'defective'.

5.3.2 A lot shall be declared as conforming to the requirements of this specification if no defective boards are found.

*Methods of sampling and test for paper and allied products: Part I (revised).

APPENDIX A

[Table 1, Item (iii)]

METHOD FOR DETERMINATION OF PLY SEPARATION

A-0. GENERAL

A-0.1 The internal bond strength of paper and paperboard, also referred to as z-directional tensile strength, is defined as the transverse force required to delaminate a unit area of material.

A-0.2 Paper and paperboard are normally considered to have two directions of strength: the machine direction (x-directional), and the cross-machine direction (y-directional). Another direction of strength exists at right angles to the plane of the sheet (z-directional); it is important in determining resistance to picking of fibers and ply separation.

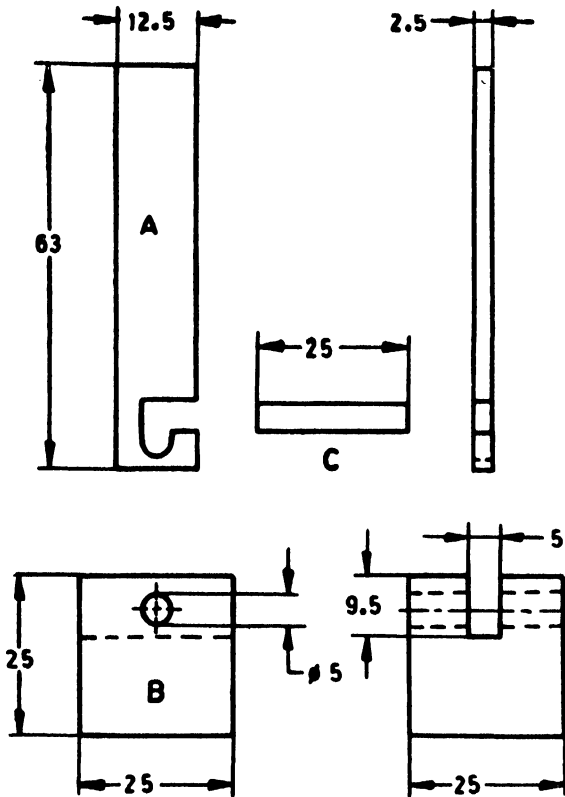
A-1. APPARATUS

A-1.1 Tensile Tester

A-1.2 Testing assembly consisting for each specimen of a pair of thick flat blocks between which a 25×25 mm specimen may be sandwiched and means for attaching the assembly between the jaws of the tensile tester. One of the following designs, readily made by any machine shop, is suitable for the purpose.

A-1.2.1 (see Fig. 1) Two steel or synthetic acrylate resin blocks (*B*) each with a highly polished 25 mm square plane face and 19-25 mm thick. Each block is attached to the jaws of the tensile tester by means of a 2.5×12.5 mm metal strap (*A*) 63 mm long with a hooked slot at one end. Each block has a groove approximately 5 mm wide and 9.5 mm deep in its back with a 3 mm removable pin (*C*) inserted at right angles in the centre of the groove for hooking on to the strap. A wire spring may be attached to the slot in the lower block to prevent it from dropping when the specimen fails.

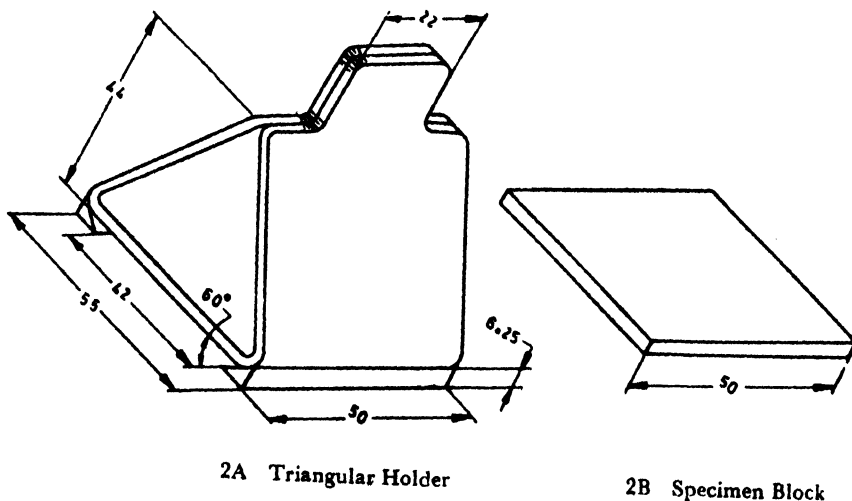
A-1.2.2 (see Fig. 2) An alternative assembly consists of two triangular holder (*A*) into which specimen blocks (*B*), about 6 mm thick with beveled sides, slide. The specimen blocks, of which at least five pairs are required, may be fabricated from steel, phenolic laminate or synthetic acrylate resin. Their faces for attaching to the specimen are required to be highly polished and absolutely plane. Overall contact may be checked by rubbing the blocks together with a little blueing compound. The blocks are also required to be uniformly thick, so that when they are compressed, a uniform pressure is applied to the specimen.



- A — Strap
 B — Block
 C — Pin for 5 mm Hole

All dimensions in millimetres.

FIG. 1 ACCESSORIES FOR INTERNAL BOND STRENGTH TEST



All dimensions in millimetres.

FIG. 2 ACCESSORIES FOR INTERNAL BOND STRENGTH TEST

A-1.3 Pressure Sensitive Tape — double coated (see Additional Information 2).

A-1.4 Hydraulic Press or other means for exerting a parallel pressure of 45 kg minimum, perpendicular to the specimen blocks.

NOTE — In some case, that is a symmetrical (twin-wire) sheet, pressure may be required.

A-2. TEST SPECIMENS

A-2.1 Obtain a sample representative of the lot being tested. From each test unit, accurately cut a minimum of five test specimens to a size of 25 × 25 mm, and condition them.

NOTE — Care should be taken to cut the specimens cleanly without damaging the edges.

A-3. PROCEDURE

A-3.1 Specimen Assembly (Fig. 3)

A-3.1.1 Cut two pieces of 25 × 25 mm double coated pressure sensitive tape, and prepare a sandwich with the blocks, adhesive tapes, and specimen, avoiding finger contact with the surfaces of the adhesive tape and the specimens.

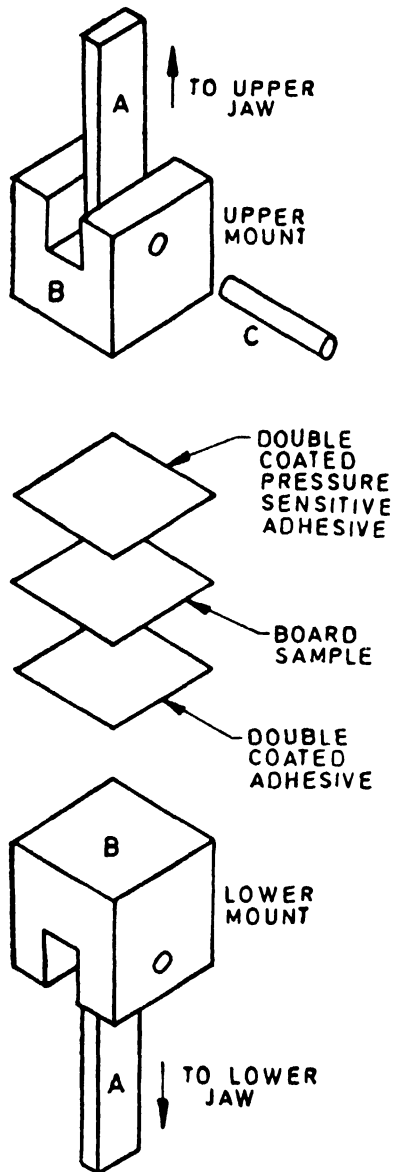


FIG. 3 INTERNAL BOND STRENGTH TEST, SHOWING MOUNT AND SAMPLE POSITIONING IN TENSILE TESTS

A-3.1.2 Place the sandwich assembly well centered on the lower platen of the hydraulic press and apply a load of 45·4 kg for 30 sec. After pressing, keep the assemblies in the conditioned atmosphere for 15 to 30 minutes before testing, in order to release compression stresses, if any, generated in the specimen assembly.

A-3.2 Fasten each assembly in the jaws of the tensile tester, making sure that the load is applied exactly in the plane perpendicular to and in the centre of the test specimen.

NOTE — This can be accomplished as follows:

- i) If the testing assembly shown in Fig. 1 is used, place one hooked strap in the upper jaw of the tensile tester and engage hook with the pin in one block. Then hook the other strap to the pin in the lower block, and fasten the strap to the lower jaw of the tensile tester.
- ii) If the testing assembly shown in Fig. 2 is used, tighten the top triangular holder in the upper jaw of the tensile tester, then with the lower jaw loose, place the sandwich assembly in the lower holder and slide the upper specimen block into the upper holder. The assembly is now essentially self-aligned and the lower holder may be tightened in the lower jaw of the tensile tester.

A-3.3 If a pendulum-type testing machine is used, operate it at such a rate that failure occurs in $7·5 \pm 2·5$ sec.

If a constant-rate-of-elongation type testing machine is used operate it so that failure occurs in $1·0 \pm 0·5$ sec.

If failure occurs other than within the specimens, discard that determination.

Make at least five valid determinations and average the result.

A-4. REPORT

A-4.1 Report the average, maximum, and minimum results as kilograms per square centimetre to two significant figures. State also the number of specimens tested.

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